portunities to satisfy that appetite from the same host, man, has made the malarial relation possible.

The important malaria transmitters are to be found among the most bloodthirsty species, and such species will mutiply rapidly in the presence of an abundant food-supply, as when laborers are massed at some previously uninhabited point. That there will be a corresponding decrease in these *Anopheles* when the food-supply is removed goes without saying.

Returning to the conditions in India, it is interesting to note that the most "domestic" species of *Anopheles rossii,* already indicated in the foregoing, is not a malaria transmitter. The most important transmitters are species normally breeding at a distance from human habitations and showing no special "domesticity." They have, however, a very highly developed appetite for blood, and this, in spite of their very much smaller numbers, makes them most effective transmitters of the malarial parasites.

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GOITER AMONG THE INDIANS ALONG THE MISSOURI

THE writer would like to call the attention of those interested to the excessive prevalence of goiter and symptoms of thyroid derangement among the Indians along that part of the Missouri Valley comprised between the Cannon Ball Creek and Cheyenne River, in North and South Dakota. The prevalence and relative acuteness of these conditions are such as to demand some special steps for their control or relief, and invite a thorough local investigation of conditions by specialists or institutions.

The people in question are the Cheyenne River and Fort Yates Sioux, and were visited by the writer last April. The frequency of goiter among the Cheyenne River bands ("Blackfeet" and "Two-Kettle") has been known for many years. In 1908, on the occasion of the writer's report on various diseases among the Indians,[1] they were in that respect at the head of the column, with 61.4 cases of goiter per thousand population, compared to 3 per thousand for the U. S. Indians as a whole. But the present extent and the equally great or even greater frequency of the disease in certain parts of the Fort Yates territory have not been suspected.

The writer examined in the two localities mentioned between 400 and 500 children and adults. The examinations were for anthropological purposes, and no record was kept of the exact proportion of thyroid enlargements; but the subject soon forced itself upon his attention. Case after case was met, particularly

[1] Hrdlička, Aleš, "Physical and Medical Observations among the Indians of Southwestern U. S. and Northern Mexico," p. 201.

among the adults, in which the pulse was excited, the heart enlarged and the temperature slightly above normal. There were over 30 per cent. of such cases among the younger and middle-aged adults among the Cheyenne River Sioux, and about the same proportion at Fort Yates, particularly in the vicinity of the Farm School. At first the symptoms were puzzling and attributed to rheumatism, excessive use of coffee, or tobacco; but it was soon seen that in most if not all cases they were connected with a greater or lesser thyroid enlargement, and eventually it became plain that they were due to the latter and were the symptoms of thyroid derangement.

The foremost question in this connection is, what are the causes of this localized prevalence of serious disturbances of the thyroid gland. It is not a tribal peculiarity, for other branches of the Sioux away from the river are less affected. There is no evidence that the disease extends for any great distance along the Missouri, or is common among the whites of same localities. The water used by the natives is mostly that of the Missouri and its small affluents. The present habits of these Indians are those of fairly civilized Indians in general. They were always hunters and great meat eaters, and are doubtless still more so than agricultural tribes, but this is true of all the Sioux. The country is of the rolling prairie type, the climate rigorous but not over-severe. Malarial infections are infrequent, but scrofula, consumption and venereal diseases prevail; all of which affords no clue as to the causes of the goiter.

It seems that here, if anywhere, in this country there is a good chance for a thorough investigation, by modern means, of the conditions leading to thyroid enlargement. The people concerned are very tractable, and both reservations are within easy reach of the railroad. The Bureau of Indian Affairs would doubtless favor and assist the investigations. In his visits to upwards of 50 tribes the writer has never met with a locality where the thyroid "infection" was as prevalent and active, and where conditions for research into its causes

In conclusion it may be added that goiter among Indians is not, so far as the writer's experience goes, connected with cretinism, which seems not to occur at all in that race, or with myxedema, and only rarely and moderately with exopthalmy.

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COMPULSORY MATHEMATICS—AN EXPLANATION

To the Editor of Science: Professor Keyser, in reviewing Professor Miller's "Historical Introduction to Mathematical Literature"[1] speaks of "the nation-wide depreciatory utterances of such educational leaders and agitators as Commissioner Snedden and Abraham Flexner" (relative to the value of the study of mathematics, I infer). I think he can not be fully informed as to my position.

My objection is merely against giving high-school mathematics a highly "protected" position, shared by no other subject except English, as we do now through college entrance requirements and the traditions controlling in secondary schools. I know (having been a moderately successful teacher of high-school mathematics myself for several years) that a substantial percentage of high-school pupils, otherwise of good ability and promise, do not respond well to mathematic teaching, and, I believe, do not materially profit from the assigned tasks, which are uninteresting, discouraging, and even, at times, obnoxious, to them. I think this is frequently the case with pupils of literary bent and artistic leanings.

I naturally very much favor the extended study (preferably under better teaching than we now obtain from the teachers prepared by our college departments of mathematics) of secondary school mathematics by all those anticipating vocational studies or pursuits where the results of such study serve a demonstrably instrumental purpose. Furthermore, I should strongly encourage other pupils to undertake these studies and to pursue them vigorously as long as they can be made to find the drill and the broadening outlook given by them interesting and, probably, fruitful.

[1] Science for July 7, 1916, pp. 25–28.